## Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Please cancel claim 28 and amend claim 1 as follows:

## Listing of Claims:

1. (Currently Amended) A device for manipulating particles in a sample fluid using dielectrophoresis, the device comprising:

a substrate;

an insulating <u>positive</u> ridge on the substrate positioned such that the sample fluid may pass over the <u>positive</u> ridge;

a plurality of electrodes spaced away from the ridge to generate a spatially non-uniform electric field across the insulating ridge.

- 2. (Original) A device according to claim 1, further comprising a plurality of the insulating ridges.
- 3. (Previously Presented) A device according to claim 1, wherein the substrate comprises glass.
- 4. (Previously Presented) A device according to claim 1, wherein the substrate comprises a polymer.
- 5. (Previously Presented) A device according to claim 1, wherein the insulating ridges comprise an insulating material supported by a non-insulating material.
- 6. (Previously Presented) A device according to claim 1, further comprising a voltage source connected to the plurality of electrodes.
- 7. (Previously Presented) A device according to claim 1, wherein the plurality of ridges on the substrate define a surface of a first fluid channel.

- 8. (Previously Presented) A device according to claim 7, further comprising a fluid port connected to the first channel.
- 9. (Previously Presented) A device according to claim 7, further comprising a second fluid channel connected to the first fluid channel.
- 10. (Previously Presented) A device according to claim 1, wherein the plurality of ridges are each at an angle of between 20 and 80 degrees relative to a direction of fluid flow.
- 11. (Previously Presented) A device according to claim 1, wherein the plurality of ridges are each at an angle of about 45 degrees relative to a direction of fluid flow.
- 12. (Previously Presented) A device according to claim 1, wherein the plurality of ridges includes a first ridge and a second ridge, said first and second ridges being positioned at different angles relative to a direction of fluid flow.
- 13. (Previously Presented) A device according to claim 1, wherein at least one ridge of the plurality of ridges is curved toward a concentration area.
- 14. (Previously Presented) A device according to claim 1, wherein the plurality of ridges are curved toward a concentration area.
- 15. (Previously Presented) A device according to claim 10, further comprising:
- a plurality of impedance matching ridges substantially parallel to the direction of fluid flow.

16. (Previously Presented) A device according to claim 13, further comprising:

a plurality of impedance matching ridges substantially parallel to a direction of fluid flow.

- 17. (Previously Presented) A device according to claim 1, wherein the spatially non-uniform electric field generated across the ridges exerts a dielectrophoretic force on at least one of said particles.
- 18. (Previously Presented) A device according to claim 17, wherein said particles comprise particles selected from the group of particles consisting of bacteria, cells, and viruses.
- 19. (Previously Presented) A method for manipulating particles using dielectrophoresis, the method comprising:

generating a spatially non-uniform electric field across an insulating ridge;

passing a sample fluid containing the particles over the insulating ridge, the spatially non-uniform electric field exerting a dielectrophoretic force on the particles thereby constraining motion of at least one particle;

exerting a mobilization force on at least the constrained particle; and transporting at least the constrained particle along the ridge utilizing the mobilization force as the sample fluid continues to pass over the insulating ridge.

- 20. (Previously Presented) A method according to claim 19, wherein the mobilization force comprises electrokinetic transport.
- 21. (Previously Presented) A method according to claim 19, wherein the mobilization force comprises advection.
- 22. (Previously Presented) A method according to claim 19, wherein the mobilization force comprises transporting particles using a gravitational force.

## 23. (Canceled)

- 24. (Previously Presented) A method according to claim 19, wherein the insulating ridges are positioned at an angle with respect to the direction of fluid flow.
- 25. (Previously Presented) A method according to claim 19, further comprising transporting the particles to a concentration area.
- 26. (Previously Presented) A method according to claim 19, further comprising:

generating a spatially non-uniform electric field across a plurality of insulating ridges including a first ridge and a second ridge, thereby constraining motion of at least a first particle to a region adjacent the first ridge;

changing the spatially non-uniform electric field such that the dielectrophoretic force on the first particle is decreased; and

transporting the first particle to the second ridge.

- 27. (Previously Presented) A device according to claim 1, wherein the ridge is a positive ridge.
  - 28. (Canceled)
- 29. (Previously Presented) A method according to claim 19, wherein the ridge is a positive ridge.
- 30. (Previously Presented) A method according to claim 19, wherein the ridge is a negative ridge.
- 31. (Previously Presented) A device according to claim 1, wherein non-uniformity in the electric field is generated primarily by the ridge geometry.

32. (Previously Presented) A device according to claim 1, wherein the electrode is spaced sufficiently away from the ridge such that non-uniformity in the electric field is generated primarily by the ridge geometry.